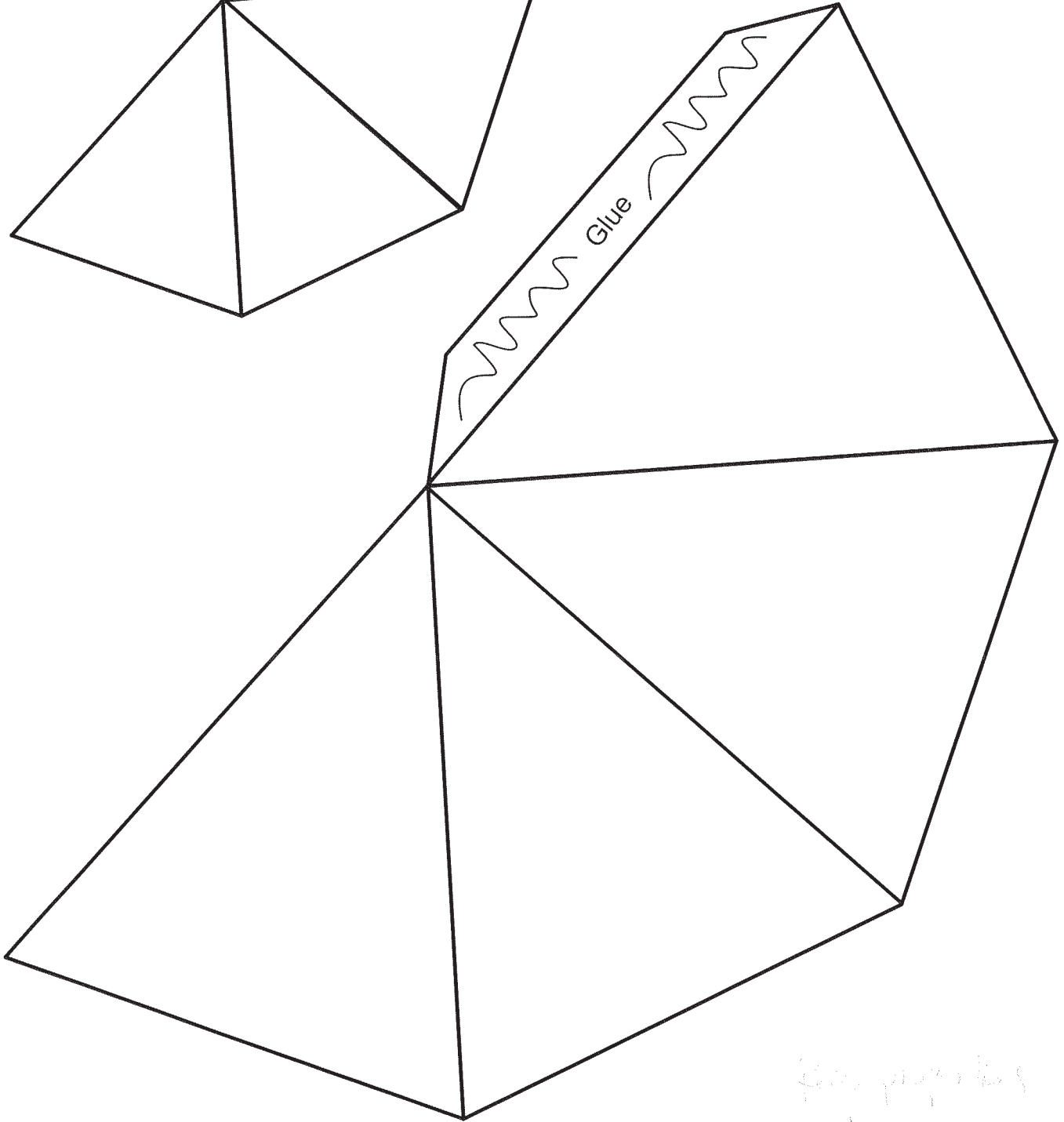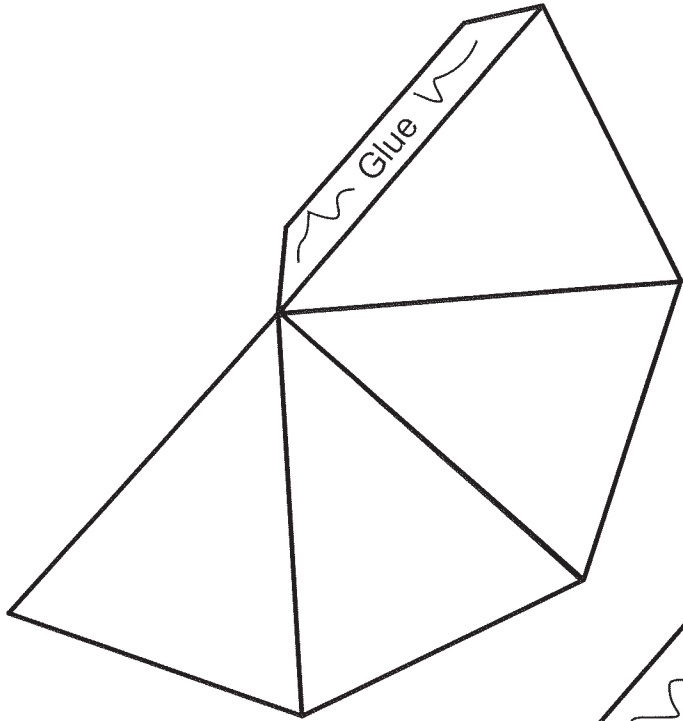# Activity One:
Surface Area of a Pyramid

Name: _____

In this lesson you will explore the surface area and volume of pyramids. Using scissors, carefully cut out both shapes on page 2. Then fold each one to make a pyramid. Use a ruler to fold carefully along the lines for sharp, even folds. Glue each tab (or use tape) to seal the sides of each pyramid.

1. Find the total surface area of the small pyramid. Use a ruler to make any necessary measurements to the nearest millimeter. Explain how you found your answer.

2. Find the total surface area of the large pyramid. Use a ruler to make any necessary measurements to the nearest millimeter. Explain how you found your answer.

3. What is the ratio of the surface area of the large pyramid to the surface area of the small pyramid?

4. Find the ratio of the base edge of the large pyramid to the base edge of the small pyramid. How does the ratio of the base edges compare with the ratio of the surface areas? Explain.

Glue

Glue

Activity Two:
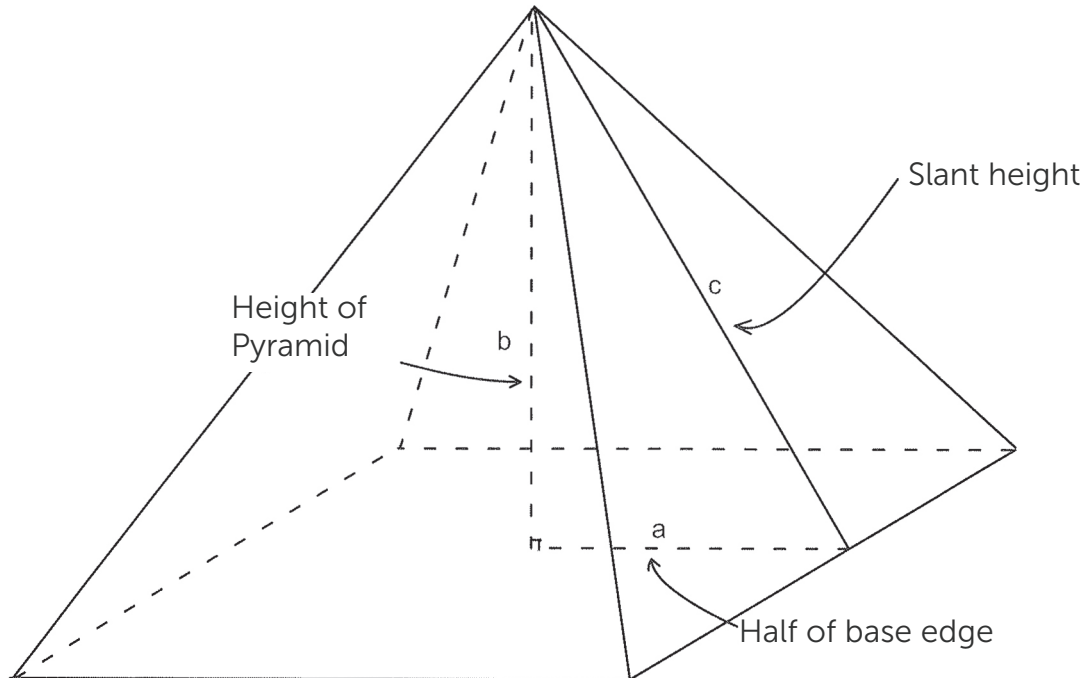## *Truncated Pyramid*

Name: _____

Look at Sol Lewitt's *Untitled* figure. This figure is called a truncated pyramid. Envision the truncated pyramid that would be formed if the top half were cut off of the large pyramid that you made in Activity One. *(Hint: You may want to draw line segments connecting the midpoints of the lateral edges of the large pyramid to help you visualize the truncated pyramid that would be formed.)*

1. Find the total surface area of the truncated pyramid that would be formed if the top half were cut off of your large pyramid. Explain how you arrived at your answer.

2. What percent of the area of one lateral face of the large pyramid is lost when the top half of the pyramid's height is cut off to form a truncated pyramid?

Challenge Activity!

Name: _____

1. Find the volume of the small pyramid that you made in Activity One. Show how you arrived at your answer. The diagram below may help you determine the height of the pyramid.

2. Find the volume of the large pyramid that you made in Activity One.

3. What is the ratio of the volume of the large pyramid to the volume of the small pyramid?

4. How does the ratio of the volumes compare with the ratios of the base edges and the ratio of the surface areas? Explain. (Hint: see Activity One, questions #3 and #4.)

Slant height

Height of Pyramid

c

b

a

Half of base edge

$$a^2 + b^2 = c^2$$